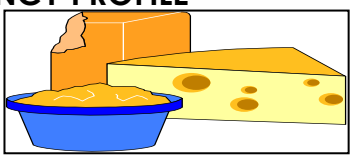
AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
AG PROCESSING TECHNOLOGY



Introduction to Food Processing - Reston
Agriscience: Fundamentals and Applications -Delmar

		9th	10th	11th	12th
A.	EXAMINING THE FOOD INDUSTRY				
1.	Determine trends in world populations				
2.	Determine trends in supply and demand of food				
3.	Identify the basic food nutrients				
4.	Evaluate the nutritive value of food groups				
5.	Determine energy value (calories) of food				
6.	Develop a knowledge of human nutritional needs				
7.	Classify food microorganisms				
8.	Conduct sensory evaluation of foods				
9.	Discuss use of chemicals in the food industry (preservation, sanitation)				
10.	Outline federal and state inspection standards				
11.	Discuss Examples of Food Contaminaton -e-coli				
12.	Interpret public health regulations in the food industry				
13.	Describe methods of food preparation (heat, cold, dehydration, concentration, irradiation, fermentation)				
14.	Describe the value-added concept				
15.	Recognize methods of pricing food products				
16.	Identify wholesale and retail markets for food				
17.	Prepare and maintain displays of food products				
18.	Explore role of consumer trends to food industry				

		9th	10th	11th	12th
B.	PROCESSING GRAIN PRODUCTS				
	U.S. Standards for Grain Grading - USDA				
1.	Identify careers in grain processing				
2.	Identify global markets for grain products				
3.	Determine the physiology of grain seeds				
4.	Identify grains and derived food products				
5.	Identify grain quality standards set by industry				
6.	Describe conversion of flour to bakery products				
7.	Describe the flour milling process				
8.	Describe conversion of semolina to pasta products				
9.	Describe conversion of grain to breakfast foods				
10.	Describe the malting process				
11.	Describe the grain oil extraction process				
12.	Describe conversion of grain to alcohol				
13.	Describe the corn refining process (flour, starch, sweetener)				
14.	Describe the oat refining process				
15.	Describe conversion of grain to livestock feed				
16.	Describe factors that affect end product grade				
17.	Identify by-products of grain processing and use				

		9th	10th	11th	12th
C.	PROCESSING MEATS AND MEAT BY-PRODUCTS				
	Meat Processing Plant Employee- VIS, Texas				
1.	Identify the careers in the meats industry				
2.	Identify global markets for meat products				
3.	Purchase livestock for slaughter				

4. Demonstrate safe use of processing equipment

		9th	10th	11th	12th
5.	Explain sanitation procedures in processing				
6.	Demonstrate slaughtering procedures				
7.	Identify factors determining meat quality				
8.	Identify skeletal structures of livestock				
9.	Identify muscling patterns/composition				
10.	Identify by-products of livestock				
11.	Evaluate quality grade of beef				
12.	Determine yield grade of beef				
13.	Evaluate quality grade of lamb				
14.	Determine yield grade of lamb				
15.	Determine grade of pork				
16.	Evaluate quality grade of pork				
17.	Recognize wholesale/retail pork cuts				
18.	Recognize wholesale/retail beef/veal cuts				
19.	Recognize wholesale/retail lamb cuts				
20.	Explore the boxed beef industry				
21.	Recognize signs of meat spoilage				
22.	Describe meat preservation processes (smoking, pickling, drying, salting, canning)				
23.	Prepare ground meats				
24.	Package and label meat according to standards				

D. PROCESSING DAIRY PRODUCTS		9th	10th	11th	12th
	Dairy Processing Plant Employee - VIS, Texas				
1.	Identify careers in dairy processing				
2.	Identify global markets for dairy products				
3.	Identify conditions for receiving and storage of milk				
4.	Describe procedures for sampling/collecting milk				
5.	Identify composition and nutrient value of milk				
6.	Test milk quality (bacterial plate count, sediment test, somatic cell count, milk flavors)				
7.	Describe the milk processing procedures				
8.	Describe the processes of milk treatment (pasteurization, vacuumination, homogenization)				
9.	Describe the process of making cultured and acidified milk products (cottage cheese, yogurt)				
10.	Classify types of cheeses				
11.	Demonstrate the process of cheese manufacturing				
12.	Describe the process of making butter				
13.	Describe the process of frozen dessert preparation				
14.	Describe the process of preparing concentrated/ dried milk products				
15.	Describe methods of sanitizing dairy equipment				
16.	Grade samples of cheese				
17.	Distinguish between real and artificial dairy products				
18.	Determine packaging, labeling, and dating standards				

E. PROCESSING FISH		9th	10th	11th	12th
	Aquaculture - MAVCC				
1.	Recognize classes of fish and seafood				
2.	Wash, scale, and gut fish				
3.	Process and fabricate fish (skinning, filleting)				

4. Recognize methods of preparing fish/seafood

9th	10th	11th	12th

5. Identify by-products of fish processing
6. Determine quality of fish
7. Package and label fish products

F. PROCESSING EGGS

9th	10th	11th	12th

Modern Livestock and Poultry Production - Delmar

1. Identify careers in egg processing
2. Identify global markets for egg products
3. Recognize exterior quality grades of eggs
4. Explain the procedure used in processing whole eggs
5. Describe the process of preparing concentrated/ dried eggs
6. Identify methods of egg preparation as food

G. PROCESSING HONEY

9th	10th	11th	12th

Bee Keeping in South Dakota - Extension Service

1. Identify careers in honey processing
2. Identify global markets for honey products
3. Evaluate facilities for producing bees
4. Describe beehive management techniques
5. List steps in harvesting honey
6. Describe process for extracting honey
7. Identify quality control factors in honey

H. PROCESSING FRUITS & VEGETABLES

9th	10th	11th	12th

Bulletins from Cooperative Extension Service

1. Identify careers in fruit/vegetable processing
2. Identify global markets for fruits/vegetables
3. Identify fruit/vegetable varieties
4. Describe fruit/vegetable production techniques
5. Describe procedures in processing fruit/vegetable (canning, freezing)
6. Evaluate the nutritive content of fruit/vegetable

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
AGRIBUSINESS SALES AND MARKETING

Ag Business Sales & Marketing - IML

		9th	10th	11th	12th
A.	EXAMINING THE FUNCTIONS OF AGRIBUSINESS				
1.	Define and identify agribusinesses				
2.	Define the free enterprise system				
3.	Compare agribusiness organizations (sole ownership, co-op, corp, partnership)				
4.	Outline primary business activities (manufacturing, marketing, servicing)				
5.	Identify role of employee in agribusiness (characteristics, organization patterns)				
6.	Prepare a letter of application				
7.	Prepare a resume				
8.	Prepare a job application form				

		9th	10th	11th	12th
B.	DEVELOPING PERSONAL MANAGEMENT SKILLS				
1.	Set personal career goals				
2.	Identify positive social skills				
3.	Identify positive personal/physical skills				
4.	Evaluate methods of managing finances				
5.	Identify community resources used in problem-solving				

		9th	10th	11th	12th
C.	DEVELOPING HUMAN RELATIONS SKILLS				
	Employment in Agribusiness - MAAVC				
1.	Identify positive personality traits				
2.	Identify positive work habits				
3.	Distinguish between job success & failure factors				
4.	Deal with co-workers in positive manner				
5.	Accept constructive criticism				
6.	Outline steps in systematic problem solving				
7.	Develop plan for personal development				

		9th	10th	11th	12th
D.	DEVELOPING COMMUNICATIONS SKILLS				
	Art of Negotiating - Delmar				
1.	Demonstrate steps for idea presentation				
2.	Develop effective listening/answering skills				
3.	Compare positive and negative communication				
4.	Recognize non-verbal communications				
5.	Demonstrate use of communications systems				
6.	Identify factors of effective negotiation				
7.	Verbally negotiate -rental rate-equipment purchase-Interest rate				
8.	Take telephone messages				
9.	Compose a business letter				
10.	Compose a business memorandum				

		9th	10th	11th	12th
E.	USING BUSINESS PROCEDURES AND RECORDS				
1.	Identify need for business records				
2.	Prepare a sales ticket				
3.	Compute sales tax				

		9th	10th	11th	12th
4.	Make change on a cash sale				
5.	Accept checks for a sale				
6.	Make credit card sales				
7.	Process refunds				
8.	Calculate product discounts				
9.	Identify tax exempt items				
10.	Identify procedures for handling credit				
11.	Define types of inventory				
12.	Calculate inventory turnover				
13.	Take inventory and complete inventory records				
14.	Prevent inventory losses				
15.	Stock merchandise displays				
16.	Calculate product gross margin				
17.	Describe elements of recordkeeping				
18.	Develop a departmental budget				
19.	Complete cash receipts journal				
20.	Complete cash expense journal				
21.	Complete accounts receivable records				
22.	Endorse checks				
23.	Write checks				
24.	Balance a check register from bank statement				
25.	Complete bank deposit slips				
26.	Complete purchase orders				
27.	Read invoice and shipping orders				
28.	Identify insurance needs of agribusinesses				
29.	Demonstrate use of adding machine/calculator				
30.	Demonstrate use of cash register				
31.	Demonstrate use of microfiche				
32.	Use a parts catalog				

F. SELLING AND SALESMANSHIP		9th	10th	11th	12th
1.	Define importance of selling in agriculture				
2.	Identify skills needed in selling				
3.	Identify groups of customers				
4.	Determine needs of customers				
5.	Handle resistance effectively				
6.	Develop a knowledge of products				
7.	Recognize steps in buying				
8.	Approach a potential customer				
9.	Outline steps in making a sale				
10.	Describe techniques of suggestive selling				
11.	Give a sales presentation				
12.	Handle customer complaints				
13.	Close a sale				
14.	Interpret warranties and guarantees				

G. ADVERTISING AND DISPLAY OF AG PRODUCTS		9th	10th	11th	12th
1.	Identify methods of promotion				
2.	Recognize purposes of advertising				
3.	Identify types of advertising media (TV, radio, billboard, magazine, newspaper, mail)				
4.	Evaluate effectiveness of displays				

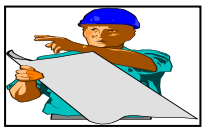
	9th	10th	11th	12th
5. Prepare an advertising calendar				
6. Calculate cost of advertising				
7. Construct agribusiness store display				

H. USING MICROCOMPUTERS IN AGRIBUSINESS	9th	10th	11th	12th
Microcomputer applications in Ag - MAAVC				
1. Identify components of microcomputers				
2. Operate a microcomputer				
3. Determine agribusiness spreadsheet applications				
4. Determine agribusiness data base applications				
5. Determine agribusiness processing applications				
6. Use a computerized inventory				
7. Maintain a customer mailing list				

I. EXAMINING AG COMMUNICATIONS CAREERS	9th	10th	11th	12th
1. Identify the role of media in agriculture				
2. Describe public relations principles				
3. Identify career opportunities in communications				
4. Review laws governing media				
5. Demonstrate ethics in communications				
6. Demonstrate ethics in agriculture				
7. Demonstrate effective listening skills				
8. Read copy on the air				
9. Demonstrate appropriate on-camera presence				
10. Operate audio-visual equipment (recorder, video)				
11. Operate a 35mm camera				
12. Use computer word processing				
13. Develop news gathering techniques				
14. Search for new developments in agriculture				
15. Identify ag organizations and purposes				
16. Study consumer interest needs				
17. Interpret governmental agricultural policies				
18. Analyze news information				
19. Read/interpret market news				
20. Develop interviewing skills				
21. Transform interviews into written material				
22. Present information in a logical manner				
23. Demonstrate creativity in information presentation				
24. Edit written material				
25. Prepare a verbal news story				
26. Handle deadline pressures				
27. Determine audience demographics				
28. Describe advertising principles				
29. Solicit advertising				
30. Design printed page and ad layout				
31. Prepare a show/conference exhibit				

J. RELATED COMPETENCIES	9th	10th	11th	12th
1. Identify careers that require competencies in agribusiness sales and marketing				

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
AGRICULTURAL ENGINEERING AND TECHNOLOGY



A. PRACTICING SAFE WORK HABITS

Ag Mechanics - Delmar

	9th	10th	11th	12th
1. Keep the shop/work area clean and orderly				
2. Identify and use protective clothing				
3. Identify safety color coding systems				
4. Follow safety procedures described by equipment operator/safety manuals				
5. Identify hazardous conditions				
6. Use appropriate equipment protection devices				
7. Operate a fire extinguisher				
8. Follow safety procedures with flammable liquids				
9. Administer basic first aid				

B. PERFORMING MECHANICS CALCULATIONS

	9th	10th	11th	12th
1. Measure objects with ruler				
2. Convert fractions to decimals				
3. Calculate perimeters of objects (square, rectangle, circle, trapezoid)				
4. Calculate midpoints of a given distance				
5. Calculate surface areas (square, rectangle, circle, trapezoid)				
6. Calculate volume of storage containers (cube, cylinder, sphere, cone, pyramid)				
7. Convert English measurement to metric				

C. CARING FOR HAND TOOLS

	9th	10th	11th	12th
1. Identify hand tools and their uses				
2. Recognize unserviceable hand tools				
3. Reshape a grinding surface				
4. Recondition/sharpen hand tools				
5. Replace tool handles				
6. Sharpen and balance rotary mower blades				
7. Sharpen a chainsaw chain				

D. PLANNING PROJECT CONSTRUCTION

	9th	10th	11th	12th
1. Sketch a project plan				
2. Estimate cost of construction materials				
3. Prepare a bill of materials				
4. Read a blueprint				
5. Scale a drawing				

E. WORKING WITH WOOD

	9th	10th	11th	12th
1. Use a chalk line				
2. Use a carpenter's square				
3. Identify types of lumber				
4. Define grades of lumber				
5. Measure and mark wood				
6. Use squaring tools				
7. Plane wood with hand tools				
8. Plane wood with power tools				

	9th	10th	11th	12th
9. Cut wood with hand saws				
10. Cut wood with power tools (sabre, circular, band, radial arm, table)				
11. Use wood-shaping power tools				
12. Drill holes with hand tools				
13. Drill holes with power tools (3/8", 1/2", press)				
14. Sand wood with power tools (finishing, orbital, belt, sander/grinder)				
15. Join wood with fasteners (nails, screws, bolts, glue, hinges)				
16. Cut and fit wood joints (butt, rabbet, dado, mitre)				

F. APPLYING PAINT/FINISH	9th	10th	11th	12th
1. Observe safety practices when using paints				
2. Mix paint/finish				
3. Prepare surface for application				
4. Clean painting equipment				
5. Apply masking materials				
6. Identify types of paints and finishes				
7. Apply paint/finish (brush, roller, gun)				

G. BUILDING WOOD STRUCTURES	9th	10th	11th	12th
Structures and Enironment - Midwest Publications				
1. Identify building construction members				
2. Evaluate construction materials				
3. Estimate cost of building construction				
4. Stake out a building site				
5. Prepare the building site grounds				
6. Set poles for pole digging				
7. Frame out a wall				
8. Build a wall corner/partition intersection				
9. Frame a rough opening in a wall				
10. Sheath a wall				
11. Cut a rafter				
12. Build a truss rafter				
13. Assemble a roof				
14. Sheath a roof				
15. Apply roofing materials				
16. Select proper flooring				
17. Select insulation materials				
18. Install insulation materials				
19. Determine ventilation needs				
20. Trim a building				
21. Hang a door				
22. Install a window				

H. UTILIZING ELECTRICAL POWER	9th	10th	11th	12th
1. Calculate problems using Ohm's laws				
2. Demonstrate the use of a voltmeter				
3. Demonstrate the use of an ohmmeter				
4. Demonstrate the use of an ammeter				
5. Observe safety practices with electricity				

6. Interpret wiring code procedures				
7. Calculate electric load of appliance				
	9th	10th	11th	12th
8. Select conductor size and type				
9. Determine circuit protection requirements				
10. Remove and replace a fuse				
11. Use proper grounding practices				
12. Select type of splicing connectors				
13. Wire a outlet controlled by single-pole switch				
14. Install a lighting outlet				
15. Install a convenience outlet				
16. Wire an outlet controlled by three-way switch				
17. Wire a 240 volt outlet				
18. Wire a thermostat				
19. Wire a stop-start switch				
20. Test an electric circuit for continuity				
21. Install conduit				
22. Develop a wiring plan for an ag building				
23. Interpret information on electric motor nameplate				
24. Select motor type and size				
25. Calculate motor rpm and pulley size				
26. Reverse rotation on an electric motor				
27. Reconnect leads to change voltage on motor				
28. Disassemble, clean and reassemble motor				

I. INSTALLING PLUMBING AND FITTING PIPE	9th	10th	11th	12th
1. Select pipe/PVC/tubing type and size				
2. Cut tubing/PVC pipe				
3. Solder copper tubing				
4. Flare copper tubing				
5. Join PVC pipe				
6. Install water fittings				
7. Design a water system for an ag facility				
8. Develop awareness of plumbing codes				

J. USING CONCRETE AND MASONRY PRODUCTS	9th	10th	11th	12th
1. Prepare site for pouring concrete				
2. Conduct slump test				
3. Mix concrete				
4. Calculate an order for ready-mix concrete				
5. Erect and brace a form				
6. Place reinforcement devices				
7. Remove a form				
8. Make insulation, control, construction joints				
9. Finish concrete				
10. Cure concrete				
11. Mix mortar				
12. Cut a masonry unit				
13. Build a concrete block wall				

K. SOIL AND WATER ENGINEERING	9th	10th	11th	12th
1. Determine legal land descriptions				
2. Identify types and uses of levels				

3. Use land measurement equipment
4. Calculate land areas and convert to acres
5. Set up and adjust level

	9th	10th	11th	12th
6. Read a rod				
7. Keep field notes				
8. Perform differential leveling exercise				
9. Lay out contour line with a hand level				
10. Complete a topographical survey				
11. Establish a grade survey				
12. Establish a grassed waterway				

L. WORKING WITH METALS

	9th	10th	11th	12th
1. Identify types of metals				
2. Use squaring tools				
3. Measure and mark metals				
4. Cut metal with hand tools				
5. Bend, shape, file, and grind metals				
6. Join metal with fasteners (screws, bolts, hinges)				
7. Cut and tap threads				
8. Apply pop rivets				
9. Join metal with solder				
10. Drill holes with power tools				
11. Cut metal with power tools (cutoff, band, power)				

M. USING GAS FUEL WELDING EQUIPMENT

	9th	10th	11th	12th
1. Observe safety practices used with gas torch				
2. Set up oxy fuel equipment				
3. Obtain a correct flame setting				
4. Cut metal with an oxy fuel torch				
5. Cut metal with plasma arc torch				
6. Join ferrous metal by brazing				
7. Weld mild steel				

N. USING ARC WELDING EQUIPMENT

	9th	10th	11th	12th
1. Read welding plans and symbols				
2. Identify welders and controls				
3. Identify electrodes and applications				
4. Prepare metal for welding				
5. Control metal distortion				
6. Observe safety practices used with arc welding				
7. Set amperage on stick welder to match work				
8. Strike and maintain an arc				
9. Demonstrate uses of gas metallic arc welder				
10. Demonstrate tungsten inert gas welder				
11. Weld flat position				
12. Weld horizontal position				
13. Weld vertical position				
14. Weld overhead position				
15. Cut metal with arc welder				
16. Weld cast iron				
17. Apply hard-surfacing materials				

O. SERVICING SMALL GAS ENGINES

	9th	10th	11th	12th
1. Clean the engine				
2. Measure engine parts with micrometer				
3. Use plastigage to check clearances				

	9th	10th	11th	12th
4. Read and interpret operator's manual				
5. Read and interpret service/technical manuals				
6. Describe the principles of a 4 cycle engine				
7. Describe the principles of a 2 cycle engine				
8. Identify engine parts and functions				
9. Repair recoil starter				
10. Remove and service air cleaners				
11. Select proper grade and type of engine oil				
12. Change crankcase oil				
13. Clean crankcase breather				
14. Remove and replace valves				
15. Recondition valves and seats				
16. Remove and replace pistons and rings				
17. Hone cast cylinder walls				
18. Remove and replace spark plugs				
19. Troubleshoot engine operation				
20. Adjust flywheel air gap				
21. Replace/adjust ignition parts				
22. Adjust idle speed				
23. Remove and replace fuel filter				
24. Adjust carburetor float				
25. Adjust load mixture needle valve				

P. SERVICING TRACTORS

FMO Preventative Maintenance - John Deere

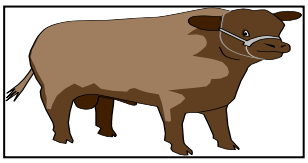
	9th	10th	11th	12th
1. Read and interpret operator's manual				
2. Order parts using serial and part numbers				
3. Design and keep a maintenance schedule				
4. Define horsepower				
5. Identify intake/exhaust parts and functions				
6. Service air cleaners (paper, oil bath, foam)				
7. Identify engine fuel system parts and function				
8. Remove and replace fuel filter				
9. Bleed diesel fuel lines				
10. Identify engine oil system parts and functions				
11. Identify types and grades of oil				
12. Change crankcase oil and filter				
13. Identify cooling system parts and functions				
14. Check coolant with hydrometer				
15. Inspect and remove/replace radiator hoses				
16. Flush cooling system				
17. Identify ignition system parts and functions				
18. Service battery and cables				
19. Check battery charge and recharge battery				
20. Identify power train parts and functions				
21. Identify types of tractor transmissions				
22. Identify hydraulic system parts and functions				
23. Service transmission oil system				
24. Identify types of hydraulic oils				

25.	Change hydraulic oil and filter			
26.	Bleed hydraulic oil lines			
27.	Service air conditioner filter			
28.	Service wheel bearings			
29.	Check tractor tire pressure and ballast			

Q. SERVICING AGRICULTURAL MACHINERY		9th	10th	11th	12th
1.	Read and interpret operator's manuals				
2.	Order parts using serial/part numbers				
3.	Clean machines				
4.	Keep machinery maintenance records				
5.	Design machinery maintenance schedule				
6.	Lubricate and grease machines				
7.	Check/change oil in gear boxes				
8.	Inspect/replace belts and pulleys				
9.	Adjust belt tension				
10.	Inspect/replace chains and sprockets				
11.	Adjust chain tension				
12.	Remove/replace bearings & bushings				
13.	Interpret electronic monitor readings				
14.	Identify types of planters and drills				
15.	Adjust furrow openers (depth, spacing)				
16.	Calibrate finger-pickup seed metering system				
17.	Calibrate seed-plate metering system				
18.	Calibrate pressurized air seed metering system				
19.	Calibrate chemical attachments				
20.	Calibrate fertilizer attachments				
21.	Calibrate fluted wheel seeding system				
22.	Calibrate grass seeder attachments				
23.	Identify types of sprayer pumps				
24.	Identify types of nozzles on chemical sprayer				
25.	Calibrate a liquid sprayer				
26.	Calibrate a granular applicator				
27.	Clean chemical applicator				
28.	Replace cutter bar on mower/conditioner				
29.	Replace cutter bar sections				
30.	Replace guards on mower conditioner/windrower				
31.	Identify baler operations (square, round, stack)				
32.	Identify tillage equipment for applicable method				
33.	Identify types of shovels and uses				
34.	Replace shovels, disks, lays				
35.	Make proper tillage adjustments (depth, angle)				
36.	Adjust combine gathering units (reel, feeder chain, snapping rolls & plates				
37.	Adjust combine threshing & separating units (concave, cylinder, fan, sieves)				

R. RELATED COMPETENCIES		9th	10th	11th	12th
1.	Identify careers that require competencies in agricultural engineering & technology				
2.					
3.					

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
APPLIED ANIMAL SCIENCE



A. SELECTING LIVESTOCK

Modern Livestock & Poultry Production-Delmar

		9th	10th	11th	12th
1.	Identify common breeds of livestock				
2.	Evaluate sire performance records (EPD, ratios)				
3.	Analyze animal pedigrees				
4.	Identify external anatomical parts of livestock				
5.	Use livestock evaluation terminology				
6.	Evaluate livestock for breeding purposes				
7.	Evaluate livestock for feeding purposes				
8.	Recognize feeder market grades				
9.	Recognize slaughter market grades				
10.	Prepare and analyze production records				
11.	Cull livestock based on set standard				
12.	Identify breed associations				

B. FEEDING AND NUTRITION OF LIVESTOCK

Livestock Nutrition and Feeding - Ohio

		9th	10th	11th	12th
1.	Identify digestive system parts and functions				
2.	Compare ruminants and non-ruminants				
3.	Describe feed conversion during digestion				
4.	Describe absorption and metabolism process				
5.	List feed nutrients and functions				
6.	Distinguish between classes of energy				
7.	Distinguish between classes of protein				
8.	Detect nutrient deficiencies				
9.	Identify/classify common feedstuffs				
10.	Identify nutrition stages of livestock				
11.	Determine nutrient needs of livestock				
12.	Interpret feed nutrient test analysis				
13.	Distinguish between "as fed" and "dry matter"				
14.	Analyze commercial feed tag				
15.	Balance a ration				
16.	Evaluate feed preparation methods				
17.	Describe method and value of creep feeding				
18.	Identify moldy/low quality feed				
19.	Describe procedure for using growth hormones				
20.	Describe feed additive withdrawal periods				
21.	Maintain feeding records				
22.	Calculate feed efficiency and rate of growth				
23.	Calculate feed cost per unit of nutrient				

C. BREEDING AND REPRODUCTION OF LIVESTOCK

Livestock & Poultry Breeding - Ohio

		9th	10th	11th	12th
1.	Define chromosome theory of inheritance (genes, DNA, RNA)				
2.	Diagram determination of offspring sex				
3.	Calculate heritability percentages from cross				
4.	Identify parts and functions of reproductive systems of male and female				

	9th	10th	11th	12th
5. Identify sexual maturity of animals				
6. Describe estrus cycle of animals				
7. Evaluate breeding systems				
8. Describe the procedure for A. I.				
9. Describe the embryo transfer process				
10. Describe process of flushing breeding animals				
11. Outline the development of the fetus				
12. Estimate parturation dates				
13. Describe the procedure for pregnancy testing				
14. Recognize parturation complications				
15. Assist newborn with complications				
16. Complete breeding records				

D. FOLLOWING HUSBANDRY PRACTICES

Livestock & Poultry Breeding - Ohio

	9th	10th	11th	12th
1. Evaluate systems of livestock production				
2. Calculate adjusted weaning weights				
3. Describe procedure for treating navels				
4. Describe methods of livestock castration (crimp, cutting, banding)				
5. Describe methods of dehorning cattle (paste, electric, scoop, spoon, Barnes, saw)				
6. Evaluate livestock identification methods (notch, tattoo, tag, hot and freeze brand)				
7. Describe procedure for weaning livestock				
8. Describe procedure for preconditioning livestock				
9. Identify livestock restraining equipment				
10. Identify optimum livestock market weights				
11. Describe procedure for docking tails				
12. Describe procedure for trimming feet				
13. Describe the sheep shearing process				
14. Sort & grade wool				
15. Identify professional livestock associations				

E. MANAGING LIVESTOCK WASTES

Modern Livestock & Poultry Production - Delmar

	9th	10th	11th	12th
1. Interpret waste handling laws and regulations				
2. Evaluate value of livestock wastes				
3. Evaluate types of waste handling systems				
4. Follow safety precautions in handling wastes				

F. PLANNING LIVESTOCK STRUCTURES AND EQUIPMENT

	9th	10th	11th	12th
1. Calculate space requirements (feed, lot, shelter)				
2. Evaluate housing systems for livestock				
3. Evaluate building floor types				
4. Plan feedlot layout				
5. Plan handling facility				
6. Select feeding equipment and systems				
7. Evaluate types of ventilation systems				

G. CONTROLLING DISEASES AND PESTS

	9th	10th	11th	12th
1. Describe disease causing pathogens				

2.	Describe the natural immunity system				
3.	Recognize biostress factors related to health				

		9th	10th	11th	12th
4.	Describe common diseases and their symptoms				
5.	Describe nutritional diseases				
6.	Take pulse rate of animals				
7.	Take temperature of animals				
8.	Describe life cycles of parasites				
9.	Identify common parasites				
10.	Select medication for given disease				
11.	Select medication for given parasite				
12.	Describe methods of oral medicine application				
13.	Describe methods of injecting medicine				
14.	Describe methods of external drug application				
15.	Administer medication/feed additives in feed				
16.	Identify types of and uses of disinfectants				
17.	Develop a health plan/medication schedule				
18.	Interpret animal health laws				

H.	MANAGING PASTURE AND RANGELAND	9th	10th	11th	12th
1.	Identify pasture/rangeland and uses				
2.	Identify parts of pasture/range plants				
3.	Classify pasture/range plants				
4.	Identify common pasture/range plants				
5.	Identify specific range/pasture sites				
6.	Describe factors affecting range condition				
7.	Evaluate range/pasture condition				
8.	Determine degree of livestock use				
9.	Calculate rangeland carrying capacities				
10.	Plan mechanical range improvements				
11.	Plan livestock distribution practices				
12.	Plan chemical range improvements				
13.	Evaluate grazing systems				

I.	USING DAIRY MANAGEMENT TECHNOLOGIES	9th	10th	11th	12th
1.	Identify milk products				
2.	Calculate feed ration based on milk output				
3.	Evaluate dairy record and testing systems				
4.	Describe dairy reproduction management cycle				
5.	Determine the milk production cycle				
6.	Evaluate types of milking systems				
7.	Identify procedure for sanitizing milk equipment				
8.	Describe the process of milk secretion				
9.	Determine pricing systems for milk				
10.	Identify production stimulants				

J.	CARING FOR HORSES	9th	10th	11th	12th
1.	Select horses based on purpose				
2.	Evaluate horse condition				
3.	Groom horse				
4.	Clean and trim hooves				
5.	Fit halter to horse				
6.	harness and hook up horse				

	9th	10th	11th	12th
7. Identify and prevent founder				
8. Recognize symptoms of leg injuries				
9. Use correct leads				
10. Develop a training schedule				
11. Determine facility needs for horses				

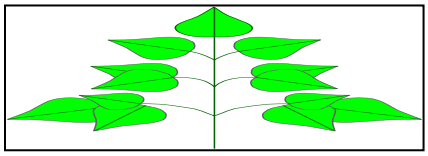
K. CARING FOR COMPANION ANIMALS	9th	10th	11th	12th
1. Categorize types of companion animals				
2. Determine companion animal selection criteria				
3. Diagram animal anatomy				
4. Identify classifications of companion animals (cats, dogs, rabbits, birds, fish, rodents, etc)				
5. Identify exotic animals				
6. Select breeding animals based on breed standards				
7. Evaluate animal condition				
8. Determine sex of companion animals				
9. Recognize important of spay/neutering				
10. Recognize breeding cycles				
11. Describe basic animal genetics				
12. Practice pre-natal care				
13. Practice proper post partum care				
14. Determine kennel size for dogs				
15. Determine hutch size for rabbits				
16. Determine cage requirements for small animals				
17. Clean and sanitize animal facilities				
18. Develop a facility cleaning schedule				
19. Construct animal housing				
20. Identify companion animals feedstuffs				
21. Determine proper feed & water requirements				
22. Analyze commercial foods				
23. Develop a feeding schedule				
24. Identify signs of a healthy animal				
25. Isolate unhealthy animals				
26. Apply first aid care to animals				
27. Identify animal health care professionals				
28. Recognize when to seek professional health care				
29. Practice routine grooming (teeth, nails, ears, eyes)				
30. Identify common companion animal parasites				
31. Practice preventive medicine (vaccines, wormers)				
32. Read labels & apply medications properly				
33. Demonstrate knowledge of normal animal behavior				
34. Practice safe behavior around animals				
35. Fit collar/halters to companion animals				
36. Restrain and control animals				
37. Modify behavior of animals				
38. Develop an exercise program				
39. Wash and dry companion animals				
40. Clip & comb hair on companion animals				
41. Identify the role of humane societies				
42. Identify professional societies (AKC, ARBA, AVMA)				
43. Describe functions of breed associations				

L. RELATED COMPETENCIES	9th	10th	11th	12th

1. Identify careers that require competencies in animal science
2. Distinguish between animal welfare/rights groups
3.

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE

APPLIED PLANT SCIENCE



A. DEFINING PLANT GROWTH AND DEVELOPMENT

Agriscience: Fundamentals and Applications -Delmar

	9th	10th	11th	12th
1. Classify agriculture plants by use				
2. Identify major crops of South Dakota				
3. Identify plant parts and functions				
4. Contrast between monocotyledon and dicotyledon				
5. Perform germination tests				
6. Describe types of root systems				
7. Identify plant growth stages				
8. Recognize pollination processes				
9. Recognize methods of vegetative reproduction				
10. Identify environmental factors affecting growth				
11. Calculate growing degree days				

B. IMPLEMENTING BIOTECHNOLOGY IN PLANT SCIENCE

	9th	10th	11th	12th
1. Sketch plant cells and parts				
2. Demonstrate tissue culturing				
3. Define and demonstrate absorption process				
4. Define and demonstrate photosynthetic process				
5. Define and demonstrate respiration process				
6. Define and demonstrate transpiration process				
7. Identify biological controls of plant pests				
8. Demonstrate effect of plant growth regulators				
9. Describe the electrophoresis process				

C. USING PLANT SELECTION TECHNIQUES

Cooperative Extension Service -pamphlets

	9th	10th	11th	12th
1. Identify methods of plant propagation				
2. List steps used in plant variety development				
3. Evaluate variety selection factors				
4. Interpret variety test results				
5. Evaluate seed grain samples for planting				
6. List requirements for certified seed production				
7. Interpret information on seed tag				
8. Identify factors affecting crop selection				

D. FOLLOWING PLANT CULTURAL PRACTICES

	9th	10th	11th	12th
1. Select crop rotation system				
2. Select seedbed preparation method				
3. Analyze characteristics for seedbed prep. (moisture, compaction, temperature)				
4. Select method of seeding				
5. Analyze proper seeding practices (depth, row width, pop., timing, spacing)				

	9th	10th	11th	12th
6. List steps in cleaning and treating seed				
7. Inoculate legume seeds				
8. Define purposes for row tillage				
9. Determine value of animal and green manure				
10. Determine value of summerfallow				
11. Define Maximum Economic Yield concepts				
12. Define reduced-tillage concepts				
13. Define no-till concepts				
14. Interpret USDA cropping regulations				

E. CONTROLLING PLANT WATER RESOURCES

	9th	10th	11th	12th
1. Identify requirements for irrigation system				
2. Identify water requirements of plants				
3. Measure soil moisture				
4. Plan an irrigation system				
5. Plan an irrigation schedule				
6. Monitor irrigation system output				

F. IDENTIFYING PLANT PESTS AND DAMAGES

Field Crop Scouting Manual - Ohio
Applying Pesticides correctly - Extension

	9th	10th	11th	12th
1. Collect and prepare weed samples				
2. Define life stages of insects				
3. Prepare insect control plan				
4. Classify insects by taxonomy				
5. Trap insects				
6. Identify common insects				
7. Recognize plant disease symptoms				
8. Identify common plant diseases				
9. Prepare disease control plan				
10. Classify growth characteristics of weeds				
11. Identify common field weeds				
12. Interpret noxious weed laws				
13. Prepare weed control plan				
14. Map plant pests and field densities				
15. Calculate crop damage (hail, insect, drought, disease)				
16. Calculate pest control thresholds				
17. Recognize pest restistance to chemicals				
18. Define intergrated pest management and management strategy to control pests				

G. USING PLANT CHEMICALS

FMO Crop Chemicals - John Deere

	9th	10th	11th	12th
1. Classify pesticides by purpose				
2. Interpret chemical labels				
3. Follow chemical safety rules				
4. List steps of pesticide development				
5. Identify pesticide formulations				
6. Identify common pesticides				
7. Demonstrate use of surfactants				
8. Select method of chemical application				

		9th	10th	11th	12th
9.	Identify chemical injury to plants				
10.	Classify plant nutrients (macro, micro, trace)				
11.	Define the nitrogen cycle				
12.	Identify plant nutrient deficiencies				
13.	Calculate nutrient cost per pound				
14.	Identify common commercial fertilizers				
15.	Calculate fertilizer formulations				
16.	Interpret soil test analysis				
17.	Select fertilizer application methods				
18.	Determine optimum fertilizer placement				
19.	Recognize use of crop defoliants				
20.	Mix chemicals properly				
21.	Identify hazards of soil chemical carryover				
22.	Interpret environmental and chemical application regulations				
23.	Obtain license to use restricted pesticides				
24.	Application of variable rate technology for chemicals and fertilizer				
25.	Demonstrate proper calibration of spray equipment				

H. HARVESTING AND STORING CROPS

Cooperative Extension Service - bulletins

		9th	10th	11th	12th
1.	Identify crop maturity				
2.	Test grain for moisture				
3.	Test hay for moisture				
4.	Secure crop sample for nutrient analysis				
5.	Select method of crop harvesting				
6.	Calculate combine harvest losses				
7.	Select grain handling system				
8.	Select grain drying method				
9.	Evaluate crop storage facilities (structures, aeration systems)				
10.	Monitor crop quality in storage				
11.	Evaluate market grade factors of crops				

I. RELATED COMPETENCIES

		9th	10th	11th	12th
1.	Identify careers that require competencies in plant science				
2.					
3.					

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
ENTREPRENEURSHIP IN AGRIBUSINESS

A. PLANNING THE AGRIBUSINESS OPERATION

Farm & Ranch Business Management - John Deere

		9th	10th	11th	12th
1.	Establish business, personal, and family goals				
2.	Define management responsibilities				
3.	Compare agribusiness organization systems				
4.	Trace steps in starting an agribusiness				
5.	Determine methods of business acquisition				
6.	Prepare partial budgets				
7.	Prepare a business enterprise budget				
8.	Select business enterprises				
9.	Prepare a total business budget				
10.	Compute a cash flow budget				
11.	Develop a long range business plan				
12.	Prepare a farmland use plan				
13.	Prepare a farmland conservation plan				
14.	Prepare a building use plan				
15.	Identify professional business services				

B. MANAGING LEGAL ASPECTS OF AGRIBUSINESS

		9th	10th	11th	12th
1.	Complete rental/lease agreements				
2.	Complete partnership agreements				
3.	Prepare custom work agreements				
4.	Identify characteristics of federal programs (USDA, OSHA, EPA, FDA, etc.)				
5.	Prepare business tax forms				
6.	Compute social security and labor taxes				
7.	Describe types of business insurance				
8.	Evaluate need for liability insurance				
9.	Evaluate need for crop insurance				

C. MANAGING AGRIBUSINESS INVENTORY

		9th	10th	11th	12th
1.	Calculate commodity storage capacities				
2.	Calculate tonnage of forage				
3.	Calculate livestock space capacity				
4.	Calculate warehouse storage capacity				
5.	Compute value of crops and livestock				
6.	Compute value of consumable supplies				
7.	Appraise value of equipment				
8.	Depreciate an asset				
9.	Prepare a depreciation schedule				
10.	Appraise value of real estate				
11.	Prepare a business inventory statement				

D. MANAGING AGRIBUSINESS RESOURCES

		9th	10th	11th	12th
1.	Apply laws of diminishing returns				
2.	Define opportunity cost				
3.	Calculate substitution ratios of resources				
4.	Compare ownership cost to leasing/rent of land				
5.	Prepare machinery/equipment use plan				

6. Calculate machine efficiency

9th	10th	11th	12th

7. Calculate cost of machine operation per unit
8. Match machine size requirements to operation
9. Compare ownership cost to leasing of equipment
10. Evaluate machine trade decisions
11. Prepare production records
12. Develop enterprise control system

E. MANAGING THE AGRIBUSINESS LABOR SUPPLY

Small Business Management - Delmar

9th	10th	11th	12th

1. Develop a plan for labor needs
2. Prepare business payroll records
3. Hire workers
4. Train workers using demonstration-performance
5. Determine pay scale & benefits
6. Dismiss employees

F. MANAGING THE AGRIBUSINESS FINANCES

9th	10th	11th	12th

1. Establish a business filing system
2. Compare cash and accrual accounting
3. Evaluate record keeping systems
4. Calculate a cash flow statement
5. Calculate variable and fixed costs
6. Prepare enterprise/department financial records
7. Calculate a profit/loss statement
8. Calculate a balance sheet
9. Balance a bank statement
10. Calculate interest by simple interest method
11. Calculate interest and principle payments on amortized loans
12. Evaluate repayment capacity
13. Calculate the effect of time on money
14. Identify and evaluate sources of business credit

G. ANALYZING THE AGRIBUSINESS OPERATION

9th	10th	11th	12th

1. Prepare an enterprise analysis statement
2. Calculate enterprise/department breakeven cost
3. Calculate business measures of efficiency
4. Read a business analysis
5. Compute business financial ratios
6. Calculate return on investment
7. Prepare a trend analysis

H. PLANNING A MARKETING PROGRAM

Commodity Marketing - Chicago Board of Trade
Commodity Challenge - Stewart Peterson

9th	10th	11th	12th

1. Identify characteristics of capitalistic market
2. Identify market supply and demand factors
3. Identify product price cycles
4. Identify factors affecting price cycles
5. Define commodity elasticities
6. Identify livestock market grade factors

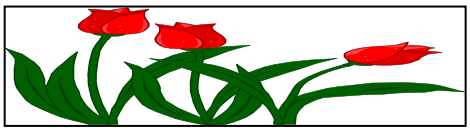
7. Identify crop market grade factors				
8. Identify markets for livestock products				
	9th	10th	11th	12th
9. Identify markets for crops products				
10. Calculate price premiums and discounts				
11. Evaluate sources of market information				
12. Chart product prices				
13. Calculate cash to futures price basis				
14. Complete futures market transactions				
15. Complete forward cash transactions				
16. Complete options market transactions				
17. Select a quality broker				
18. Calculate product storage costs				
19. Calculate marketing costs				
20. Prepare a commodity marketing plan				
21. Prepare a market analysis				
22. Identify commodity promotional associations				

I. USING COMPUTERS IN THE AGRIBUSINESS	9th	10th	11th	12th
1. Use computer as a decision aid tool				
2. Use computer to calculate production data				
3. Prepare word processor files				
4. Prepare data base files				
5. Prepare spreadsheets for management decisions				
6. Prepare business analysis				
7. Prepare business records with computer				
8. Use electronic media to access market information				

J. RELATED COMPETENCIES	9th	10th	11th	12th
1. Identify careers that require competencies in entrepreneurship/management				
2.				
3.				

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE

HORTICULTURE



A. IDENTIFYING HORTICULTURE PLANTS

Introductory Horticulture - Delmar

	9th	10th	11th	12th
1. Label plant parts and functions				
2. Identify potted foliage & flowering plants				
3. Identify landscaping plants				
4. Identify vegetables & fruits				
5. Identify floriculture crops				

B. PREPARING SOILS AND PLANTING MEDIA

	9th	10th	11th	12th
1. Identify soil mix materials and characteristics				
2. Mix soil media				
3. Sterilize soils/soilless materials				
4. Mix fertilizer into soil media				
5. Prepare outdoor seedbed				

C. PROPAGATING PLANTS, SEEDS, AND CUTTINGS

	9th	10th	11th	12th
1. Apply rooting hormones				
2. Maintain dormant plants				
3. Propagate plants by planting seeds in flats				
4. Transplant seedlings				
5. Propagate plants by taking cuttings				
6. Propagate plants by division of plant				
7. Plant bulbs				
8. Propagate plants in a soilless media				
9. Plan planting schedules				

D. PRODUCING VEGETABLE/FRUIT CROPS

	9th	10th	11th	12th
1. Draw a plan for planting a garden				
2. Prepare seedbed for garden seeds				
3. Analyze seeding practices (depth, temp, spacing)				
4. Maintain and operate gardening equipment				
5. Identify methods of weed control in the garden				
6. Determine maturity in fruits and vegetables				
7. Identify methods of fruit/vegetable harvest				
8. Prepare fruit/vegetable produce for marketing				
9. Identify markets for fruit/vegetable produce				

E. CONTROLLING THE PLANT ENVIRONMENT

	9th	10th	11th	12th
1. Control growth rate of plants (temp, light, chemical reaction)				
2. Make fertilizer recommendations				
3. Apply soil mulches				
4. Identify primary plant nutrients				
5. Test soil pH				
6. Test soil mix for fertility				
7. Identify common plant diseases				
8. Identify common horticulture insects				
9. Describe the use of growth stimulants				
10. Describe methods of pest control				
11. Mix chemicals for proper application				

		9th	10th	11th	12th
12.	Interpret chemical labels				
13.	Follow chemical safety rules				
14.	Force potted plants to bloom				
15.	Force bulbs				
16.	Identify common horticulture weeds				
17.	Identify water needs of plant families				
18.	Identify garden care chemicals				
19.	Identify lawn care chemicals				

F. DESIGNING AND MAINTAINING LANDSCAPES		9th	10th	11th	12th
1.	Select landscape plants for given plan				
2.	Select landscape fences & furniture				
3.	Calculate cost of a landscape plan				
4.	Plant trees and shrubs				
5.	Plant ground covers				
6.	Trim and prune hedges/shrubs				
7.	Prune ornamental trees				
8.	Identify principles of landscaping (simplicity, balance, focal, rhythm, scale)				
9.	Read a landscape plan				
10.	Design a landscape plan				
11.	Seed lawns				
12.	Describe methods of laying sod				
13.	Maintain lawn/turf				
14.	Maintain and operate lawn equipment				

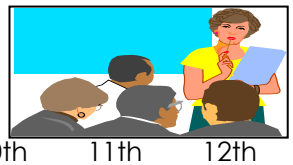
G. RELATED COMPETENCIES		9th	10th	11th	12th
1.	Identify careers that require competencies in horticulture and related areas				
2.					
3.					

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
INTERNATIONAL AG MARKETING

Infusing A global Perspective in Ag,Vols 1&2

		9th	10th	11th	12th
A.	LOCATING AREAS OF AGRICULTURAL IMPORTANCE				
1.	Name and locate six U.S. production regions				
2.	List states within production regions				
3.	List South Dakota ag products and U.S. ranking				
4.	Compare competitive advantage of South Dakota ag products to other states				
B.	DEVELOPING AN AWARENESS OF INTERNATIONAL AG				
1.	Discuss benefits of international trade to U.S.				
2.	Compare food needs of counties to production				
3.	Compare economic factors of various countries (GNP, growth rate, population, life expectancy, ag industry, literacy)				
4.	Determine factors affecting world food stocks				
5.	Explain effects of U.S. trade policy on trade (GATT, EEP, Most Favored Nation)				
6.	Analyze current issues affecting trade				
7.	Identify world trading communities/blocks (EC, CIS, etc.)				
8.	Determine major seaport cities of the world				
9.	Determine monetary exchange between countries				
C.	DEVELOPING NATIONS AS TRADING PARTNERS				
1.	Identify developing nations and trade potential				
2.	Compare income spent on food between nations				
3.	Compare per capita consumption of foods between nations				
4.	Determine customers for U.S. ag products				
5.	Determine effects of infrastructure of nations				
D.	EXPLORING AG PRODUCTS FROM UNITED STATES				
1.	Calculate marketing status of U.S. products (domestic use vs. export)				
2.	Trace distribution of commodity from U.S. to foreign countries				
3.	Compare quality of U.S. ag products to those of competitors				
4.	Identify exporting marketing strategies (unit trains, storage programs, hedging)				
5.	Explain role of commodity groups, marketing corporations and government in marketing				
E.	RESEARCHING CAREERS IN GLOBAL AGRICULTURE				
1.	Describe careers involved in international employment (salary, training, location, etc.)				
2.	Locate education programs in international ag				
3.	Identify differences between countries (culture, governments, society)				
4.	Identify international programs in the FFA				

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
LEADERSHIP & PERSONAL DEVELOPMENT

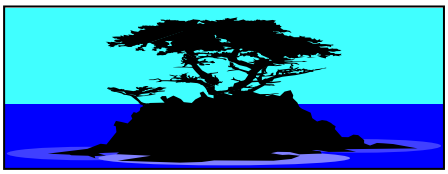


A. FUNCTIONING AS AN ORGANIZATION MEMBER	9th	10th	11th	12th
Student FFA Handbook - FFA Supply Service				
1. Become familiar with FFA history				
2. Become familiar with FFA Creed				
3. Become familiar with FFA Aims and Purposes				
4. Become familiar with FFA Constitution and Bylaw				
5. Qualify for Greenhand Degree				
6. Prepare a business meeting agenda				
7. Assist in developing chapter program of work				
8. Demonstrate five parliamentary procedure skills				
9. Become familiar with officers and duties				
10. Identify FFA activities available to members (awards, travel, contests, conventions, etc.)				
11. Develop a plan for involvement in FFA				
12. Complete proficiency award applications				
13. Qualify for Chapter FFA Degree				
14. Qualify for State FFA Degree				
15. Qualify for American FFA Degree				

B. RELATING TO OTHERS IN SOCIETY	9th	10th	11th	12th
1. Describe purposes for committees				
2. Identify types of committees (ad hoc, standing)				
3. Describe the decision making process				
4. Demonstrate etiquette and social skills				
5. Carry on a conversation with others				
6. Demonstrate effective listening and answering skills				
7. Identify types of speeches/presentations (impromptu, demonstration, extemporaneous, etc.)				
8. Prepare and deliver speech/presentation				
9. Lead a group discussion				

C. DEVELOPING A PLAN FOR PERSONAL IMPROVEMENT	9th	10th	11th	12th
1. Complete a personality inventory				
2. Develop goals for personal improvement				
3. Demonstrate confidence				
4. Exhibit perseverance				
5. Show ability to comprehend instructions				
6. Demonstrate initiative				
7. Demonstrate reliability				
8. Exhibit tact				
9. Demonstrate loyalty				
10. Demonstrate enthusiasm				
11. Demonstrate cooperation				
12. Exhibit adaptability				
13. Exhibit proper grooming				
14. Provide leadership				
15. Exhibit poise				
16. Exhibit honesty				

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
NATURAL RESOURCES



A. MANAGING AND CONSERVING SOILS

Managing Our Natural Resources - Delmar

		9th	10th	11th	12th
1.	Define the functions of soils				
2.	Describe major components of soil				
3.	Describe the soil formation process				
4.	Determine soil structure				
5.	Determine soil characteristics based on color				
6.	Determine the texture of soil				
7.	Identify the horizons of a soil profile				
8.	Evaluate moisture carrying capacity of soils				
9.	Determine land capability classes				
10.	Evaluate land using evaluation card				
11.	Describe types of soil erosion				
12.	Evaluate water erosion control methods				
13.	Evaluate wind erosion control methods				
14.	Calculate soil loss using erosion loss equation				
15.	Develop a land use plan				
16.	Interpret a soil survey map				
17.	Take a soil sample				
18.	Determine soil pH				
19.	Use soil test equipment to measure nutrients				
20.	Prepare soil test information forms				
21.	Describe purpose of Soil Conservation Districts				
22.	Identify functions of SCS				

B. PLANNING RESOURCE RECREATION

		9th	10th	11th	12th
1.	List agencies responsible for outdoor recreation				
2.	Identify recreational needs of communities				
3.	Lead or guide recreational activities				
4.	Select recreational sites				
5.	Prepare a site development plan				
6.	Design a nature walk				
7.	Administer CPR				
8.	Apply basic emergency first aid				
9.	Demonstrate use of a compass				
10.	Find locations using a map				

C. MANAGING WILDLIFE

		9th	10th	11th	12th
1.	Illustrate predator and prey population				
2.	Identify fur wildlife species				
3.	Identify species of fish				
4.	Identify game birds/non-game birds/waterfowl				
5.	Define endangered and threatened species				
6.	Evaluate food sources of wildlife				
7.	Create a food web				
8.	Take random population sample of wildlife				
9.	Identify fur wildlife habitats				
10.	Identify plant growth problems in ponds				

	9th	10th	11th	12th
11. Plan fish habitat improvements				
12. Determine wildlife land carry capacity				
13. Determine carrying capacity of ponds				
14. Plan wildlife habitat improvements				
15. Identify techniques used in raising game birds				
16. Demonstrate safe hunting practices				
17. Interpret game laws				
18. Identify wildlife trapping methods				
19. Prepare specimens for tanning				

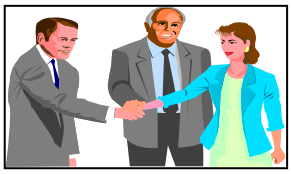
D. MANAGING TREES/FORESTRY OPERATIONS	9th	10th	11th	12th
1. Define a forest community				
2. Identify parts of a tree				
3. Classify trees by deciduous or coniferous				
4. Identify tree species/forest plants				
5. Design a shelterbelt				
6. Prepare soil medium for tree planting				
7. Plant trees from seed				
8. Prepare seedbed for transplanting				
9. Transplant tree seedlings				
10. List cultural practices used in tree production				
11. Identify and control insects affecting trees				
12. Identify and control diseases affecting trees				
13. Identify and control weeds in tree plots				
14. Calculate board feet in a tree				
15. Measure tree height and diameter breast height				
16. Determine growth rate and age of trees				
17. Identify forest harvesting patterns				
18. Select trees for harvesting				
19. Identify and use forestry safety equipment				
20. Identify forest harvesting tools				
21. Determine volume of a log				
22. List steps in processing logs				
23. Identify uses of wood products				
24. Identify lumber defects				
25. Identify methods of drying wood				
26. Evaluate and grade finished lumber				
27. Identify sources of forestry assistance agency				
28. Describe environmental damages caused by fire				
29. Identify forest fire management practices				
30. Identify use of fire fighting equipment				

E. MANAGING WATER RESOURCES	9th	10th	11th	12th
Investigating Water Problems - Lamotte Chemical				
1. Describe the hydrologic cycle				
2. Identify surface and ground water supplies				
3. Analyze a watershed reference map				
4. Calculate water needs of farm/rural community				
5. Interpret water use laws and rights				
6. Determine water quality standards				
7. Collect a water sample				
8. Conduct dissolved oxygen test				

9. Test water for hardness				
10. Conduct water sodium test				
	9th	10th	11th	12th
11. Conduct nitrate test				
12. Conduct a phosphate test				
13. Conduct water pH test				
14. Conduct water salinity test				
15. Determine water turbidity				
16. Make a bacteria plate count				
17. Interpret water analysis results				
18. Determine point and non-point contamination				
19. Identify stages of water filtration				
20. Identify stages of water purification				

F. RELATED COMPETENCIES	9th	10th	11th	12th
1. Identify careers that require competencies in natural resources				
2.				
3.				

AGRICULTURAL EDUCATION/AGRISCIENCE COMPETENCY PROFILE
SUPERVISED AGRICULTURAL EXPERIENCE



A. DEVELOPING THE GENERAL SAE PROGRAM

SAE Record Book - Student, Teachers Guide

	9th	10th	11th	12th
1. Define and identify goals				
2. Plan a calendar of events				
3. Complete and record FFA activities				
4. Complete and record community activities				
5. Complete improvement projects				
6. Identify and record non-SAE earnings				
7. Record personal expenses				
8. Obtain and record SAE project loans				
9. Complete a depreciation schedule				
10. Complete a financial statement				
11. Summarize SAE activities				

B. DEVELOPING PRODUCTION SAE PROGRAMS

	9th	10th	11th	12th
1. Develop business agreements for production entrepreneurship projects				
2. Prepare inventory statements				
3. Complete an income journal				
4. Complete animal feed records				
5. Complete an expense journal				
6. Record plant program information				
7. Complete livestock breeding records				
8. Calculate dairy production data				
9. Record project hours of labor				
10. Identify and record approved practices				
11. Calculate enterprise budget & summary				
12. Complete enterprise efficiency record				

C. DEVELOPING A DIRECTED LAB/SKILLS PROGRAM

	9th	10th	11th	12th
1. Evaluate and select DLE enterprises				
2. Develop DL/S training agreement				
3. Record DL/S activities				

D. DEVELOPING AN AGRIBUSINESS PROGRAM

	9th	10th	11th	12th
1. Complete a business plan				
2. Project business materials cost				
3. Project business labor cost				
4. Project business operation cost				
5. Project business equipment cost				
6. Compute business profit potential				
7. Complete a business inventory				
8. Record business income				
9. Record business expenses				
10. Complete a business labor record				
11. Calculate business profit/efficiency				

E. DEVELOPING PLACEMENT SAE PROGRAMS

	9th	10th	11th	12th
1. Develop agribusiness placement training agreement				
2. Develop agribusiness placement training plan				
3. Record employment related expenses				
4. Record employment related income				